Rockwell ER Program
Rocky Flats Plant

(11/03/89)

ER PROGRAM DATA ASSESSMENT SUMMARY REPORT FORM

Batch No. E89-0052/1 Quarter 1989 **Site** Area 2 - 881 Hillside

Laboratory RFP 881 General Labs **No. of Samples/Matrix** 22/Water

SOW # 7/87 **Reviewer Org.** TechLaw, Inc.

Sample Numbers TB(1/13/89), FB(1/13/89), 2-87, 4-87, 69-86, TB(1/17/89), FB(1/17/89), 70-86, 56-86, 56-86D, 10-74, 5-87, 52-87, TB(1/24/89), FB(1/24/89), 3-87, 8-87, 62-86, 45-87, TB(1/26/89), FB(1/26/89), 9-74

Data Assessment Summary

		ICP	AA	Hg	CN	Comments
1.	Holding Times	V	V	V	N/A	
2.	Calibrations	A	V	V	N/A	Action Items 1,2
3.	Blanks	A	A	A	N/A	Action Items 3-11
4.	ICP Interference Check Sample	A	N/A	N/A	N/A	Action Items 12-15
5.	Lab Control Sample Results	V	V	V	N/A	
6.	Duplicate Sample Results	V	A	V	N/A	Action Item 21
7.	Matrix Spike Sample Results	V	A	V	N/A	Action Items 16-20
8.	Method of Standard Addition	N/A	V	N/A	N/A	
9.	Serial Dilution	V	N/A	N/A	N/A	
10.	Sample Verification	V	A	V	N/A	Comment 1
11.	Other QC	V	V	V	N/A	
12.	Overall Assessment	A	A	A	N/A	Data acceptable with qualifications

V = Data had no problems.
A = Data acceptable but qualified due to problems.
R = Data rejected.
X = Problems, but do not affect data.

Data Quality: Data contained in this batch were reviewed and found to be acceptable with qualifications. Acceptable, qualified data may be used provided that individual values impacted by the "Action Items" listed below are appropriately flagged. (Refer to attached Results Summary Tables).

ADMIN RECORD

"REVIEWED FOR CLASSIFICATION
By R. B. Hoffman (4) 1
Date 2/1/90

REVIEWED FOR CLASSIFICATION/UCNI
By George H. Setlock
Date @ 6/27/90

890052/rk8

Action Items: 1) Antimony values for 56-86D, 52-87, and 9-74 are estimated (J) because the CRDL check sample (CRI) was outside control limits.

2) The Cadmium non-detects for 2-87, 4-87, 69-86, FB(1/17/89), 10-74, 3-87, and 9-74 are estimated and undetected (UJ) because the CRI recovery was outside control limits.

3) Zinc values for TB(1/13/89), 69-86, FB(1/17/89), 70-86, 56-86, 56-86D, 5-87, 52-87, TB(1/24/89), FB(1/24/89), 8-87, 45-87, TB(1/26/89), FB(1/26/89), and 9-74 are estimated and undetected (UJ) because of Zinc values >IDL in the calibration blanks.

4) Barium values for TB(1/13/89), FB(1/13/89), TB(1/17/89), FB(1/17/89), TB(1/24/89), FB(1/24/89), and TB(1/26/89) are estimated and undetected (UJ) because of Barium values >IDL in the calibration blanks.

5) Copper values for TB(1/13/89), 69-86, TB(1/17/89), FB(1/17/89), 70-86, 56-86, 56-86D, 10-74, 52-87, TB(1/24/89), FB(1/24/89), TB(1/26/89), FB(1/26/89), and 9-74 are estimated and undetected (UJ) because of Copper values >IDL in the calibration blanks.

6) Calcium values for TB(1/13/89), TB(1/24/89), FB(1/24/89), TB(1/26/89), and FB(1/26/89) are estimated and undetected (UJ) because of Calcium values >IDL in the calibration blanks.

7) Cadmium values for FB(1/13/89), TB(1/13/89), TB(1/17/89), 70-86, 56-86, 56-86D, 5-87, 52-87, TB(1/24/89), FB(1/24/89), 8-87, 62-86. 45-87, TB(1/26/89), and FB(1/26/89) are rejected (R) because of negative bias indicated in the calibration blanks.

8) Aluminum values for 2-87, 4-87, 69-86, TB(1/17/89), 70-86, 56-86, 56-86D, 10-74, 5-87, 52-87, TB(1/24/89), FB(1/24/89), 3-87, 45-87, and 9-74 are estimated and undetected (UJ) because of Aluminum values >IDL in the calibration blanks.

9) The Arsenic value for 9-74 is estimated (J) and non-detect values for 45-87, TB(1/26/89), and FB(1/26/89) are rejected (R) because of a negative bias indicated in the calibration blanks.

10) Lead values for FB(1/13/89), TB(1/17/89), FB(1/17/89), 70-86, 56-86, 56-86D, 52-87, and TB(1/24/89) are estimated and undetected (UJ) because of Lead values >IDL in the calibration blanks.

11) Mercury non-detects for all samples are estimated and undetected (UJ) because blanks were not included in the analysis.

Action Items: (cont.) 12) The Silver non-detect for 5-87 is estimated and undetected (UJ) because of possible interference indicated in the interference check samples (ICS).

13) The Chromium value for 5-87 is estimated (J) because of possible interference indicated in the ICS samples.

14) The Molybdenum non-detect for 5-87 is estimated (UJ) because of possible interference indicated in the ICS samples.

15) The Vanadium non-detect for 5-87 is estimated and undetected (UJ) because of possible interference indicated in the ICS samples.

16) The Arsenic values for 56-86 and 56-86D are estimated (J) because the pre-digestion matrix spike recovery was outside control limits.

17) The Arsenic non-detects for TB(1/24/89), 70-86, 5-87, 52-87, and 10-74 are estimated and undetected (UJ) because the pre-digestion matrix spike recovery was outside control limits.

18) The Selenium value for 8-87 and 45-87 are estimated (J) because the post-digestion matrix spike recovery was outside control limits and because of Selenium values >IDL in the calibration blanks.

19) The Thallium non-detects for 2-87, 3-87, 4-87, 8-87, 9-74, 52-87, 69-86, 56-86, 56-86D, 10-74, 5-87, TB(1/24/89), and 52-87 are estimated and undetected (UJ) because the post-digestion matrix spike recovery was outside control limits.

20) The positive Arsenic value for 4-87 is estimated (J) and non-detect Arsenic values are estimated and undetected (UJ) for 8-87 and 69-86 because the post digestion spike recoveries were outside control limits.

21) Positive Selenium values for 10-74 and 5-87 are estimated (J) and non-detect Selenium values for 52-87 and TB(1/24/89) are estimated and undetected (UJ) because of poor duplicate precision.

Comments: 1) The Potassium value for 9-74 was incorrectly reported. The correct value is listed in the table accompanying this report.

Note: Data Summary Tables are attached.

Richard Cardone — Reviewer Signature

11/2/89 — Date

TABLE #: E89-0052 Page 1 of 2

SITE NAME: Area 2 - 881 Hillside

CLP WATER INORGANIC ANALYSIS: Low Water ANALYTICAL RESULTS (ug/L)

Sample Location																							
Sample Number			TB(1/13/89)		FB(1/13/89)		2-87		4-87		69-86		TB(1/17/89)		FB(1/17/89)		70-86		56-86		56-86D		10-74		5-87	
Sample Date			1/13/89		1/13/89		1/13/89		1/13/89		1/13/89		1/17/89		1/17/89		1/17/89		1/17/89		1/17/89		1/17/89		1/17/89	
Remarks			Trip Blank		Field Blank								Trip Blank		Field Blank						Field Dup.					
Inorganic Analyte		DL ug/L		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ
Aluminum	Al	200	15.0 U	V	15.0 U	V	16.1 UJ	A	43.7 UJ	A	20.8 UJ	A	16.0 UJ	A	15.0 U	V	42.8 UJ	A	75.7 UJ	A	63.1 UJ	A	43.7 UJ	A	54.3 UJ	A
Antimony	Sb	60	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	57.7 J	A	50.0 U	V	50.0 U	V
Arsenic	As	10	1.0 U	V	1.0 U	V	1.0 U	V	5.5 J	A	1.0 UJ	A	1.0 U	V	1.0 U	V	1.0 U	V	14.1 J	A	25.6 J	A	1.0 UJ	A	1.0 UJ	A
Barium	Ba	200	4.2 UJ	A	1.9 UJ	A	110	V	44.4	V	131	V	2.1 UJ	A	1.5 UJ	A	78.5	V	71.1	V	72.3	V	44.9	V	40.2	V
Beryllium	Be	5	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V
Cadmium	Cd	5	5.0 U	R	5.0 U	R	5.0 UJ	A	5.0 UJ	A	5.0 UJ	A	5.0 U	R	5.0 UJ	A	5.0 U	R	5.0 U	R	5.0 U	R	5.0 UJ	A	5.0 U	R
Calcium	Ca	5000	648 UJ	A	561 U	V	89800	V	132000	V	146000	V	561 U	V	561 U	V	28400	V	30000	V	29600	V	211000	V	304000	V
Cesium	Cs	1000	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V
Chromium	Cr	10	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	9.0 U	V	11.1 J	A
Cobalt	Co	50	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V
Copper	Cu	25	4.9 UJ	A	4.0 U	V	4.0 U	V	4.0 U	V	5.4 UJ	A	14.3 UJ	A	6.2 UJ	A	23.6 UJ	A	4.5 UJ	A	5.0 UJ	A	6.2 UJ	A	4.0 U	V
Iron	Fe	100	38.9	V	35.0 U	V	67.2	V	35.0 U	V	38.3	V	35.0 U	V	35.0 U	V	52.1	V	56.7	V	66.9	V	35.0 U	V	35.0 U	V
Lead	Pb	5	1.0 U	V	1.7 UJ	A	1.0 U	V	1.0 U	V	1.0 U	V	14.6 UJ	A	3.4 UJ	A	2.0 UJ	A	1.3 UJ	A	4.4 UJ	A	1.0 U	V	1.0 U	V
Lithium	Li	100	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R	
Magnesium	Mg	5000	37.0 U	V	37.0 U	V	25600	V	25600	V	36900	V	37.0 U	V	37.0 U	V	4150	V	7150	V	7050	V	57600	V	86800	V
Manganese	Mn	15	2.0 U	V	2.0 U	V	10.8	V	141	V	9.4	V	2.0 U	V	2.0 U	V	8.5	V	5.3	V	4.4	V	2.0 U	V	8.0	V
Mercury	Hg	0.2	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A
Molybdenum	Mo	200	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 UJ	A
Nickel	Ni	40	22.0 U	V	22.0 U	V	23.4	V	161	V	23.4	V	22.0 U	V	22.0 U	V	22.0	V	22.0 U	V	22.0 U	V	22.0 U	V	22.0 U	V
Potassium	K	5000	500 U	V	500 U	V	1350	V	672	V	1010	V	500 U	V	500 U	V	3520	V	1350	V	1280	V	604	V	11500	V
Selenium	Se	5	1.0 U	V	1.0 U	V	1.0 U	V	213	V	172	V	1.4	V	1.0 U	V	1.0 U	V	1.0 U	V	1.0 U	V	243 J	A	142 J	A
Silver	Ag	10	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 UJ	A
Sodium	Na	5000	2270 U	V	2270 U	V	87300	V	181000	V	130000	V	2270 U	V	2270 U	V	30100	V	23200	V	23100	V	176000	V	182000	V
Strontium	Sr	200	5.0 U	V	5.0 U	V	1080	V	918	V	1130	V	5.0 U	V	5.0 U	V	326	V	180	V	179	V	1790	V	3690	V
Thallium	Tl	10	1.0 U	V	1.0 U	V	1.0 UJ	A	1.0 UJ	A	1.0 UJ	A	1.0 U	V	1.0 U	V	1.0 UJ	A	1.0 UJ	A	1.0 UJ	A	1.0 UJ	A	1.0 UJ	A
Tin	Sn	200	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R	
Vanadium	V	50	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 UJ	A
Zinc	Zn	20	29.6 UJ	A	8.0 U	V	8.0 U	V	8.0 U	V	16.2 UJ	A	8.0 U	V	11.1 UJ	A	11.0 UJ	A	14.8 UJ	A	19.5 UJ	V	137	V	22.8 UJ	A
Cyanide		10	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R	

U Indicates the compound was not detected above the Instrument Quantitation Limit

J Quantitation is approximate due to limitations identified during the quality control review

ug/L Micrograms per liter

E Exceeds calibration range

DL Detection Limit

N/R Not Reported

DQ Data Qualifier

V Valid

A Acceptable with qualifications

R Rejected

Form lowattbl

890052L/rk8

TABLE #: E89-0052

SITE NAME: Area 2 - 881 Hillside

CLP WATER INORGANIC ANALYSIS: Low Water ANALYTICAL RESULTS (ug/L)

Sample Location																								
Sample Number			52-87		TB(1/24/89)		FB(1/24/89)		3-87		8-87		62-86		45-87		TB(1/26/89)		FB(1/26/89)		9-74			
Sample Date			1/17/89		1/24/89		1/24/89		1/24/89		1/24/89		1/24/89		1/24/89		1/26/89		1/26/89		1/26/89			
Remarks					Trip Blank		Field Blank										Trip Blank		Field Blank					
Inorganic																								
Analyte		DL ug/L		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		DQ		
Aluminum	Al	200	35.8 UJ	A	16.3 UJ	A	22.6 UJ	A	30.3 UJ	A	101	V	99.5	V	23.2 UJ	A	15.0 U	V	15.0 U	V	49.3 UJ	A		
Antimony	Sb	60	59.9 J	A	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	50.0 U	V	61.2 J	A		
Arsenic	As	10	1.0 UJ	A	1.0 UJ	A	8.3 U	V	1.0 U	V	1.0 UJ	A	1.0 U	V	1.0 U	R	1.0 U	R	1.0 U	R	2.2 J	A		
Barium	Ba	200	122	V	1.7 UJ	A	3.2 UJ	A	63.4	V	17.4	V	41.5	V	62.2	V	1.0 UJ	A	1.0 U	V	84.6	V		
Beryllium	Be	5	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V	2.0 U	V		
Cadmium	Cd	5	5.0 U	R	5.0 U	R	5.0 U	R	5.0 UJ	A	5.0 U	R	5.0 U	R	5.0 U	R	5.0 U	R	5.0 U	R	5.0 UJ	A		
Calcium	Ca	5000	97100	V	622 UJ	A	624 UJ	A	26500	V	134000	V	33200	V	40200	V	900 UJ	A	1020 UJ	A	222000	V		
Cesium	Cs	1000	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V	5.0 U	V		
Chromium	Cr	10	9.0 U	V	9.0 U	V	12.0	V	9.0 U	V	10.2	V	29.0	V	9.0 U	V	9.0 U	V	9.0 U	V	11.4	V		
Cobalt	Co	50	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V	29.0 U	V		
Copper	Cu	25	19.1 UJ	A	4.2 UJ	A	8.6 UJ	A	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.6 UJ	A	5.4 UJ	A	5.7 UJ	A		
Iron	Fe	100	35.0 U	V	35.0 U	V	35.0 U	V	35.0 U	V	25300	V	49.0	V	35.0 U	V	35.0 U	V	35.0 U	V	51.9	V		
Lead	Pb	5	1.4 UJ	A	1.6 UJ	A	1.2	V	1.0 U	V	1.0 U	V	1.5	V	1.0 U	V	1.0 U	V	1.0 U	V	1.0 U	V		
Lithium	Li	100	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R			
Magnesium	Mg	5000	23900	V	37.0 U	V	37.0 U	V	7330	V	40900	V	11300	V	10200	V	37.0 U	V	37.0 U	V	52100	V		
Manganese	Mn	15	199	V	2.0 U	V	2.0 U	V	37.8	V	294	V	2.0 U	V	400	V	2.0 U	V	2.0 U	V	3.2	V		
Mercury	Hg	0.2	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A	0.2 UJ	A		
Molybdenum	Mo	200	27.0 U	V	27.0 U	V	27.0	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V	27.0 U	V		
Nickel	Ni	40	28.6	V	22.0 U	V	28.3	V	22.0 U	V	22.0 U	V	22.0 U	V	22.0 U	V	22.0 U	V	22.0 U	V	22.0 U	V		
Potassium	K	5000	1420	V	500 U	V	500 U	V	5770	V	9230	V	3860	V	11900	V	500 U	V	500 U	V	808	V		
Selenium	Se	5	1.0 UJ	A	1.0 UJ	A	1.0 U	V	1.0 U	V	1.6 J	A	56.5	V	1.3 UJ	A	1.0 U	V	1.0 U	V	964	V		
Silver	Ag	10	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.0 U	V	4.7	V	4.0 U	V	4.0 U	V		
Sodium	Na	5000	166000	V	2270 U	V	2270 U	V	121000	V	226000	V	54800	V	79400	V	2270 U	V	2270 U	V	171000	V		
Strontium	Sr	200	692	V	5.0 U	V	5.0 U	V	407	V	2120	V	451	V	485	V	5.0 U	V	5.0 U	V	1850	V		
Thallium	Tl	10	1.0 UJ	A	1.0 UJ	A	1.0 U	V	1.0 UJ	A	1.0 UJ	A	1.0 U	V	1.0 U	V	1.0 U	V	1.0 U	V	1.0 UJ	A		
Tin	Sn	200	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R			
Vanadium	V	50	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V	34.0 U	V		
Zinc	Zn	20	120 UJ	A	9.4 UJ	A	20.9 UJ	A	8.0 U	V	8.9 UJ	A	8.0 U	V	12.7 UJ	A	12.9 UJ	A	10.3 UJ	A	13.7 UJ	A		
Cyanide		10	N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R		N/R			

U Indicates the compound was not detected above the Instrument Quantitation Limit
J Quantitation is approximate due to limitations identified during the quality control review
ug/L Micrograms per liter
E Exceeds calibration range.
DL Detection Limit
N/R Not Reported

DQ Data Qualifier
V Valid
A Acceptable with qualifications
R Rejected

Form lowattbl
890052L/rk8